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Acquisition Reform: Whats Wrong With This Picture?

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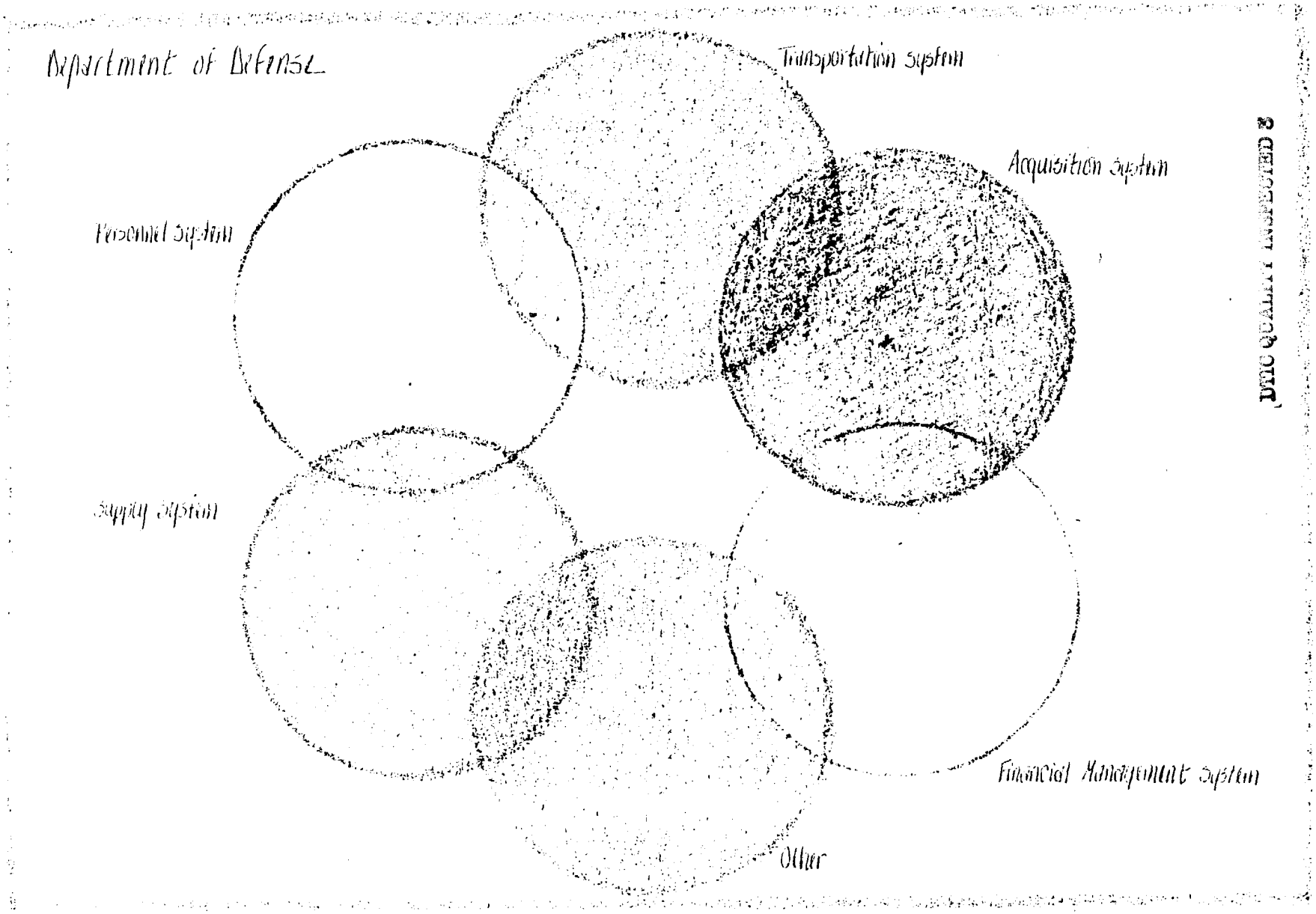

Figure 1

Vision:

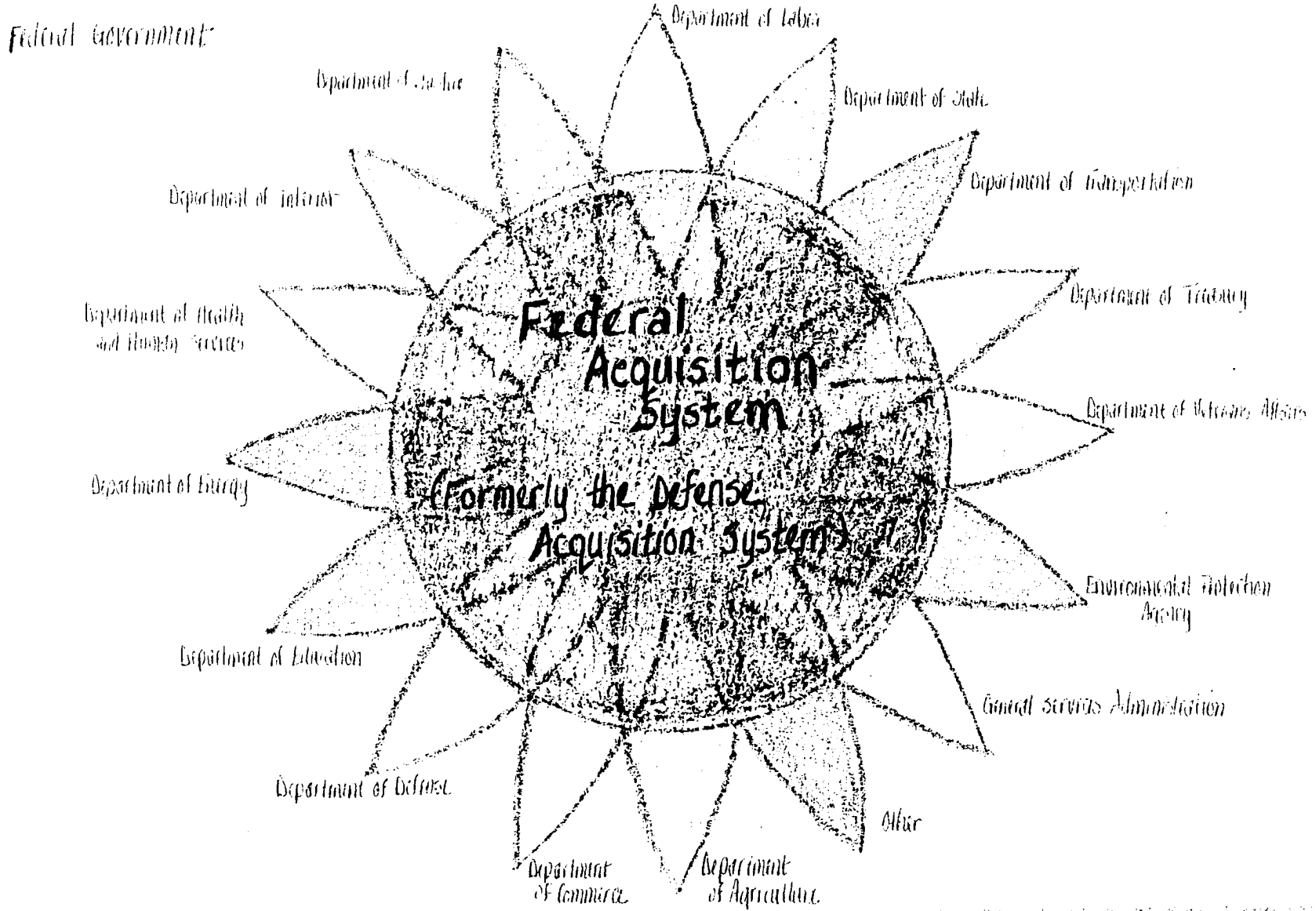

Figure 2

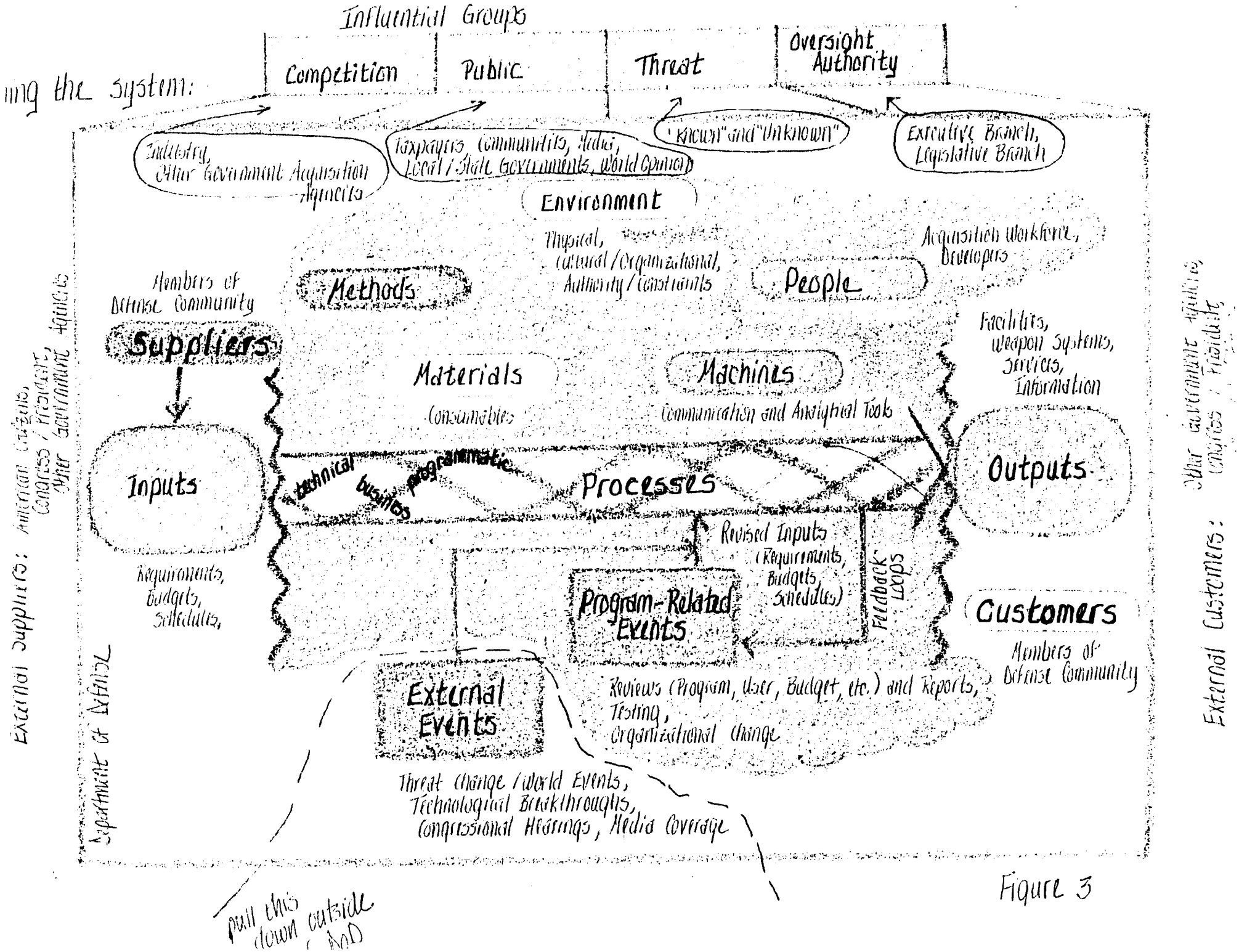
Influential Groups
ing the System:
Competition
Public
Threat
Oversight Authority
Industry, Other Government Acquisition Agencies
Taxpayers, Communities, Media, Local / State Governments, World Opinion
"Known" and "Unknown"
Executive Branch, Legislative Branch
Environment
Typical, Cultural / Organizational, Authority / Constraints
Acquisition Workforce, Developers
Members of Defense Community
Methods
People
Suppliers
Facilities, Weapon Systems, Services, Information
Materials
Consumables
Machines
Communication and Analytical Tools
Inputs
Technical
Business
Programmatic
Processes
Outputs
Revised Inputs (Requirements, Budgets, Schedules)
Feedback Loops
Requirements, Budgets, Schedules,
Program-Related Events
Customers
Members of Defense Community
External Events
Reviews (Program, User, Budget, etc.) and Reports, Testing, Organizational Change
Threat Change / World Events, Technological Breakthroughs, Congressional Hearings, Media Coverage
External Suppliers: American Citizens, Congress / Private Sector, Other Government Agencies
External Customers: Other Government Agencies, Congress / Private Sector
Department of Defense
pull this down outside DoD

Figure 3

Acquisition Reform:
What's Wrong With This Picture?

by

Ronnie Rawls

Abstract

Acquisition reform has been a topic of discussion for the last fifty years. Finally, it has begun, with some impressive initial results. The problem is with the overall approach -- it's not being done systematically with an organized big picture in mind.

That's a problem because, like the laws, as more ideas are adopted, there's likely to be:

- sub-optimization (where effects aren't realized immediately or aren't what was intended), and
- "tampering," (as we try to force the system to do what it can't).

These will cause acquisition reform to make the changed system worse.

Not doing it with the big picture in mind will also result in missed opportunities when we aren't able to see possibilities across boundaries and functional areas. We may suffer from paradigm paralysis, which will keep the Acquisition Reform effort from being all that it could be.

How do we avoid these potential problems? Adopt a systematic approach and reform defense acquisition for the best performance overall.

Acquisition Reform:
What's Wrong With This Picture?

Acquisition reform is well underway. We have made some changes for the better. We have modified or eliminated many laws and regulations, and we have improved some of the processes by introducing new tools and techniques, like electronic commerce. So what's wrong with this picture?

The trouble is that there's not a big picture, at least not one that's been clearly articulated or consistently shared among the defense acquisition community.

This paper briefly summarizes the history and progress of reform efforts to date, explains why the current path to acquisition reform is flawed, and recommends adopting a specific systematic approach.

HISTORY AND PROGRESS

It has long been generally acknowledged that the Government does not acquire goods and services efficiently or cost effectively. Over the last 50 years, a dozen major studies have confirmed it, tried to succinctly state why, and suggested how acquisition could be done better. In summary, the major concerns and recommendations have focused on:

- organization -- centralizing, or not, all acquisition under the Department of Defense (DoD), or splitting according to functions (e.g., centralizing policy and decentralizing execution);

- processes -- streamlining and improving;
- policies, practices and procedures -- adopting "best practices" and increasing use of commercial products; and
- the acquisition workforce -- encouraging training and professional development.[1]

Most recently, the DoD Acquisition Reform Office, led by the Deputy Under Secretary of Defense for Acquisition Reform (DUSD (AR)), was created in 1993. Initially, the staff's efforts focused on drafting legislation that revised how we acquire goods and services, resulting in the passage of the Federal Acquisition Streamlining Act (FASA) of 1994. It impacted contracting procedures by:

- instituting wide-spread use of Electronic Commerce and Electronic Data Interchange (EC/EDI) for the solicitation and award of contracts;
- raising the small purchase threshold making possible the use of simplified acquisition procedures; and,
- encouraging commercial item procurement to the maximum extent possible.[2]

FASA was the beginning; additional changes were coordinated and introduced in the 1996 National Defense Authorization Act. The highlights include:

- repealing the Brooks Act (which had mandated procurement of commercial computer equipment through the General Services Administration);
- streamlining procurement integrity standards;
- explaining procurement procedures for commercial items; and,

- reconfiguring the DoD acquisition organization and workforce, with a 25 percent reduction over the next five years.[3]

Several teams have also been chartered to evaluate other key areas, such as:

- requiring use of performance specifications whenever possible, and minimizing reliance on military specifications and standards;
- advocating single processes in place of the multiple processes used in many places; and,
- emphasizing more (and earlier) teamwork among all those involved in the acquisition process.

WHAT'S BROKEN WITH ACQUISITION REFORM?

Nothing is wrong with the results so far. None of the changes appears to be a bad idea. At present, they all seem to be improvements over the way we have acquired goods and services in the recent past. With the possible exception of EC/EDI, which was enabled by technological breakthroughs occurring over the last several years, none of the initiatives are radical or new. Most simply incorporate the recommendations of previous studies and a little good common sense into acquisition.

The problem is with the overall method -- acquisition reform is not being done systematically with an organized big picture in mind. That's a critical flaw because, like the acquisition statutes studied by the Section 800 Panel, as more ideas are adopted, there are likely to be two serious consequences: sub-optimization (where the full effects of the

changes aren't realized immediately, or don't turn out to be what was intended); and, "tampering" (as we try to force the system to give us results it is incapable of delivering).

Sub-optimization

Consider how a Program Manager administers his budget. He gets funds each year to execute his program and do whatever it is that he's planned. Sometimes, because of unforeseen events, the Program Manager will end up with excess funds for the year. The program schedule might slip, possibly pushing some key events (testing, large hardware procurement, etc.) just into the next fiscal year. (That's not so good.) Or there might be a technological breakthrough that's allowed the Program Manager to save money on a hardware purchase. (That's good.) Either way, he's got extra money for that year. Current financial management practices don't incentivize him to offer that money back. Instead, the Program Manager knows that he must use all the money he's got for the year, one way or another. If he doesn't, someone will assume that he's not a good manager or that he asks for more money than he can use, and his budget the following year will be cut. So, to protect his budget next year, it may seem like a good idea to use the surplus funds for some other valid, but not necessarily planned or urgent, purpose (perhaps advancing, or increasing the quantity of, a hardware purchase for spares). Meanwhile, another Program Manager somewhere else truly has an urgent need (a high risk effort requires additional resources) which goes unmet, or is offered a real cost savings to buy all of the hardware he needs at one time which he cannot afford to do with his current

budget. He is unable to meet that urgent need, or to save overall by taking advantage of buying in quantity ... because no extra funds are available that year.

The first Program Manager is not incentivized to return extra funds which might benefit the whole community; in fact, he may be penalized if he does so. Therefore, he sub-optimizes by doing what's marginally better for his program at the serious expense of another program, and makes the whole system less effective than it could be.

Similarly, over the years, most of us have viewed various areas of acquisition as specific and separate areas -- like contracting, testing or logistics. We've made adjustments or improvements to maximize performance in our areas without consideration of the possible adverse effects of those adjustments on others. The recent introduction of Integrated Product Teams to manage acquisition projects is intended to deter that type of thinking, and it's a very positive change. But there are some changes, if taken to extreme, which might not be so beneficial.

Consider the current preference for procurement of commercial items whenever possible. As long as commercial items meet the performance (technical and logistic) requirements, it seems wise to avoid the development costs and delays associated with defense-unique acquisitions. However, we must be diligent in evaluating those requirements to be sure that we aren't sacrificing necessary performance to gain back time and money.

That's how sub-optimization might ultimately become a problem -- if we become so enamored with making a change to maximize performance in one area that we are

unaware, or unconvinced, of the detrimental effect on the whole system's performance. Too many 'good ideas' like that, carried to extremes, could eventually cause the *improved* acquisition system to be even less effective and efficient than the existing one.

"Tampering"

Acquisition reform efforts could also evolve into "tampering," particularly if we become impatient for results. Dr. W. Edwards Deming, the advocate who helped inspire the quality revolution, illustrated the concept with the funnel experiment. A funnel is fixed some distance above a flat surface. A marble is dropped through the funnel, hits the surface and rolls to a resting spot. If we repeat the experiment, we might expect the second marble to end up at the same resting spot as the first. We would be disappointed, however, since it won't. So we try to cause it to find the same spot by moving the funnel over, one way or another, in an effort to compensate for the missed distance last time. Then we repeat the experiment with a third marble ... and when it also misses the original mark, we make new calculations and move the funnel again, etc. Instead of recognizing that the funnel is incapable of delivering every marble dropped through it into the same resting spot (understanding the system, how it works, and its capabilities), we keep trying to move the funnel (adjust, or "tweak," parts of the system) to give the result we want.

Many have found fault with the current acquisition system -- we generally agree that it costs too much and takes too long to deliver quality products into the hands of the warfighter.[4] Sometimes we think we know exactly how to "fix" the system to give the result we want, and we mandate an immediate change or solution. In so doing, we

perceive ourselves to be decisive and responsive, but what we have really done is "tamper" with the system. Consequently, we seldom get the results we wanted, and often invoke side effects which may exacerbate the original problem or cause entirely new problems. All of this happens because we don't take the time to fully understand the system and how it works, or to perform any analysis to see what the system is capable of doing so we'll better see what the root causes of a problem might be.

A classic example of "tampering" is Congress in enacting new legislation to remedy problems. Many times when there were perceived inadequacies in the acquisition system, Congress would pass a law to ensure that certain events wouldn't be repeated. The end result of these repeated interventions was an intricate network of statutes that stifled, and was very burdensome for, the rest of the system.[5] Yet, in spite of all the laws (adjustments to the system), acquisition remains lengthy and costly. In fact, analysis might show that the root cause for some of the inefficiencies is the elaborate statutory web (directly from Congress) which has led to excessive regulatory and oversight burden (indirectly caused by Congress). During one of the Section 800 Panel's early meetings, Senator Jeff Bingaman acknowledged the distressing inclination in recent years for the Congress to enact laws without sufficient awareness of the full consequences on the acquisition system as a whole.[6] Clearly, much of the legislation has just exacerbated, not resolved, what are fundamental weaknesses of the system.

Congress isn't the only possible meddler, though. There are many who are eager for big pay-offs from acquisition reform -- not the least of which are those of us in the

acquisition community. And as time goes on, with mostly cost avoidance vice substantial documented savings attributable to acquisition reform, we may face increasing temptation to mandate quick "fixes" that we hope will result in huge sums being channeled back into the defense acquisition budget.

Sub-optimization and "tampering" are serious considerations since they could cause us to unintentionally degrade the acquisition system's performance. But there is another, equally disturbing risk in not approaching acquisition reform with the big picture in mind: we could miss significant improvement opportunities by failing to recognize possibilities that transcend boundaries and functional areas. We might fall far short of our mark with respect to acquisition reform because of paradigm paralysis -- our individual attachments to, and preferences for, old ways of doing business.

Paradigm Paralysis

The following tale, told by self-proclaimed "futurist" Joel A. Barker, illustrates why avoiding paradigm paralysis and adopting a new mindset are important to successfully reform the defense acquisition system:

> There once was a young man with a very fast car who loved to drive on country roads. He thought of himself as a great driver. He could handle anything. One day he was out driving his favorite road and coming into his favorite curve, when around the curve came a car careening out of control. And just before it got to him, it pulled into its lane. As it passed, a woman yelled out, "Pig!" Well, he

responded in a flash and shot back, "Cow!" He thought to himself, 'how dare she call me a name! I was in my lane; she was the one who was all over the place!' But he felt rather smug because he got her before she got away. And so he put the accelerator to the floor, whipped around the curve, and ran into the pig.

The young man was responding with old rules. "You call me a name; I'll call you a name." Yet when you think about it, she was really trying to warn him. The next few years are going to be filled with people coming around blind curves and yelling things at you, and, if you have paradigm flexibility, what you'll be hearing will be opportunities. Otherwise, what you'll be hearing will sound like threats.[7]

We all have paradigms. They are sets of rules and regulations that do two things: establish boundaries and tell how to be successful by solving problems within the boundaries. Paradigms are common and frequently useful in our daily lives. The problem is that sometimes a paradigm limits us when we see only our own perspective. It can act as a filter to screen data that we do not agree with or want to accept. We select data that fits our "rules" and try to ignore the rest. As a result, something that is perfectly obvious to someone with one paradigm may be totally imperceptible to someone with a different paradigm.[8]

By 'paradigm flexibility,' Mr. Barker referred to the ability to see things differently, to keep an open mind and to look for creative alternatives. In many ways, our collective paradigms about defense acquisition are beginning to change. For example, a few years

ago we routinely insisted on the most rigid conformance to military specifications and standards, which told Developers exactly how to design, develop, test or build a product. Our paradigm was that, left to their own devices, they couldn't possibly conduct those activities in such a way as to deliver us the products we needed. Now, though, we emphasize reliance on performance specifications, which tell Developers what we want the product to do, and we let them be creative in figuring out the "hows."

On the other hand, we have several lingering paradigms that do paralyze the defense community and prevent us from seeing future opportunities. For example, most defense acquisition programs are headed by active duty military Program Managers. The paradigm is that one has to have been a military operator in order to *really* 'understand' the users' needs. Yet numerous industries/professions disprove that notion:

- medical -- many of the world's best obstetricians are men, yet they'll never *live* the experience of childbirth;
- legal -- most lawyers aren't criminals and many haven't experienced the judicial system as a 'user,' yet they *deliver* very effective defense or prosecuting arguments/cases; and,
- construction -- engineers don't necessarily work second jobs as truck drivers or pilots, nor do they generally have those backgrounds when they enter the construction industry, yet they are able to design/build roads and airports that meet the needs of those who use them.

The paradigm about needing a military operator to acquire weapon systems unnecessarily ties up many military professionals at a time when the Services are downsizing, and might instead prefer to use the people as warfighters. It also wastes a great deal of talent since many capable civilians are prevented from realizing their ambitions to become Program Managers.

Another widely held paradigm is that each Service needs its own separate acquisition organization. The argument is that the needs of each Service, and the products they acquire, are so unique that they all have to do those things differently. Yet much commonality is either played down or unacknowledged:

- military housing -- most people have the same basic needs (heating, plumbing, electricity) when it comes to shelter; they generally require a kitchen, bathroom(s), bedroom(s), family/living/dining room(s); there may be different types of structures built in various locations, but fundamental requirements aren't that different.
- vehicles -- each Service transports goods and people at one time or another; quantity, weight, size, expected terrain, etc., are just a few of the characteristics that might vary, but that's functional, based on intended use, and not strictly dependent on Service differences.
- aircraft -- all of the Services use aircraft, sometimes for very similar purposes; they may vary in size, speed, altitude, distance and the type of runways they can use, but they've all got to lift-off, fly with people and payloads, and land.

And the most basic requirement of all -- for quality products that meet the users' needs, at affordable prices, delivered on time -- is the same, regardless of the Service. While there are some notable joint acquisition projects between the Services, more could be consolidated along functional lines, if each Service did not have to justify the existence of its own acquisition organization.

The concept of paradigms is especially useful in acquisition reform. As the story of the young man and his car relates, when our paradigms are challenged, opportunity is often just around the corner.

HOW CAN WE AVOID THE POTENTIAL PROBLEMS?

We must approach acquisition reform systematically and in a disciplined manner. We must look for and understand the:

- nature of, and relationships between, all the parts of the defense acquisition system (so we can avoid sub-optimization, and realize how what's done in one place will affect the rest of the system);
- capabilities of the system (so we can avoid "tampering," and understand how the system may have to be "re-formed" to enable it to be responsive), and,
- possibilities for change/improvement across functional boundaries (by avoiding paradigm paralysis).

Then we can accomplish comprehensive, consolidated and coordinated reform of the acquisition system.

ADOPT A SYSTEMATIC APPROACH TOWARD REFORM

Following is the description and explanation of a hybrid model for system change that incorporates aspects of a strategic planning model and a quality process improvement model. It provides a recipe, an orderly series of steps, to follow as we reform the defense acquisition system.

- Define the Business (decide what we do now and what we want to do in the future)
- Define the System and Conduct a Situational Analysis (figure out what we have to work with, and what the environment offers)
- Identify the Critical Processes (look at how we get things done)
- Identify Measurement Characteristics (determine how we judge success)
- Take Action and Reform the System (explore possibilities and try new ideas)
- Create a Control System to Monitor and Track Improvement (get feedback to see how we're doing and how we can keep doing it better)

Very simply, we need to first **DEFINE THE BUSINESS**. That means, in strategic planning terms, that we need to define our mission (what the acquisition system does or is supposed to do) and create a vision (where we want to go or what we ideally want to achieve). We must be clear about what we do and want to accomplish before we can reform the acquisition system to get from here to there.

Defining the Mission

The 15 Mar 96 version of DoD Directive 5000.1 on "Defense Acquisition" states that:

> The primary objective of the defense acquisition system is to acquire quality products that satisfy the needs of the operational user with measurable improvements to mission accomplishment, in a timely manner, at a fair and reasonable price.[9]

The stated objective, or mission, of the defense acquisition system seems pretty clear and specific. Yet, over the years, the defense acquisition system has increasingly become the instrument of choice for several other purposes, depending on the role one plays or how much influence one has over the acquisition system. In addition to the purpose stated above, the system has, for example, been used as a tool to:

- provide jobs and boost, or maintain, the economy of various localities;
- keep certain industries alive;
- stimulate small business; and,
- protect the environment.

Are those valid missions for the defense acquisition system? They have certainly never been incorporated into formal objectives, even though they have been mandated, accepted and carried out. This may be a golden opportunity to decide, in the context of today's environment, whether or not we should delete or modify some of them, or add others. Perhaps we've accomplished most of what we originally set out to do, and should now return to the core function. Or perhaps not. Either way, determining the mission of

the acquisition system should be an intentional decision made by the American public (perhaps not via an actual ballot, but rather by relaying their opinions to their representatives), not one made by default where the system continues to evolve to accommodate everyone's needs because we do not wish to confront the issues and conduct the dialogue. If these are bona fide missions that we collectively determine to be valid, then the mission statement above should be expanded to include the additional goals and we should purposefully acknowledge them -- realizing and accepting that they may often directly conflict with our focus on cost, schedule and quality products. If the other missions are not deemed valid for the defense acquisition system, then we must work with the groups that have influence over the system and convince them to stop imposing these additional responsibilities on it.

Congress is, without doubt, the best example of a constituent group that has tremendous interest in and influence over defense acquisition. Members have a voice in everything from the program budget to the number of units to be procured, not to mention which weapon system is actually selected when there are competing alternatives. Granted, Congressional responsibilities include collecting taxes, paying debts and accounting for receipts and expenditures of public money.[10] Inherently, they are trusted to be good stewards of the funds entrusted to them by the American public.

But should Congressmen use their 'power of the purse' to manipulate the inner workings of the defense acquisition system? Should they really be deciding what systems should be acquired, and how many are necessary to defend the country? Is that the level

of detail the Founding Fathers had in mind when they charged the Congress to " ... provide for the common Defence ... ?"[11] Should Congressmen be allowed to favor one technology over another, one industry over another, one company over another? These are politically and emotionally charged questions with obvious answers -- depending on one's perspective.

The challenging issue is this: if we did collectively decide to drop the other responsibilities and more narrowly define the mission of the defense acquisition system, how could influential groups (including Congress) be successfully persuaded to support the revised mission (i.e., stop trying to use the system to promote other agendas)?

Creating the Vision

Once we've agreed on the mission, we must decide where we want to go. Having an endstate in mind is essential since, as the old saying goes ' ... if you don't know where you want to go, any road will get you there.'

Mr. Barker illustrates the need for a vision with the following analogy:

> ... in our lives we all have rivers to cross. On the other shore is our future. Sometimes the river is calm and the crossing is easy. But, other times the river is turbulent, full of unpredictability. Too often, during these turbulent times, we try to cross the river just by jumping in and starting to swim. We find ourselves swept away in the current, washed downstream. We hope that where we end up on the other side will be good enough. But there is a better way to cross the river. Have a vision of our future. Then, when we see our vision beckoning to us with

> its positive power, it will reach like a rope back across the river to give us something to hang on to as we step into the water. ... while there is no guarantee that we will arrive at our goals, this rope extended from the power of our vision offers us our best connection to the future. And if we grab it firmly in our hands, then we will be ready to take the plunge and venture toward tomorrow.[12]

The only overarching vision for defense acquisition is DUSD (AR)'s -- to be "the smartest, most efficient, most responsive buyer of best value goods and services to meet the warfighters' needs."[13] There's a problem with that vision, however, in that it's unofficial, not widely promoted among the acquisition workforce or even acknowledged among the highest levels of defense acquisition leadership.[14] Many individual acquisition entities within the Services have visions, which sometimes overlap, but there is no strongly held, unifying vision for everyone in the defense acquisition community to support.

There should be a common vision for the defense acquisition system, and it should be developed by our leaders (consisting of at least the Under Secretary of Defense for Acquisition and Technology, USD (A&T), and the Service Acquisition Executives), with inputs from the rest of the acquisition community. The leaders must rely on their awareness of the world to focus all of those inputs into a consistent, powerful vision. While numbers are important, particularly with regard to how much money can be saved, the vision can't be expressed in those terms because numbers are inadequate to inspire the

efforts and innovation needed to achieve a vision. Savings will result as the vision is achieved.[15]

The vision must be shared with the rest of the community and we must agree to support it. That will create agreement on direction, which simplifies decision-making since every decision can then be measured by whether or not it supports the vision. Our vision must be complete and specific, telling enough about 'what, when, why and how' so that everyone can define his or her role in helping to accomplish it. Last, the vision must be optimistic and affirming. Everyone must be challenged to give his best and to do his part.[16]

In view of the astounding changes that have taken place in the world over the last decade, and with an eye toward even more profound change as we approach the 21st Century, perhaps we should reach for a really radical vision -- *to be the acquisition system of choice for all departments, agencies, organizations and representative entities of the United States federal government.*

Currently, we are the *defense* acquisition system. [Refer to Figure 1, with the Acquisition System portrayed as a circle whose edges overlap other circles -- Defense Department systems such as Transportation, Financial Management, Personnel, Supply and others. Acquisition is only one system that services Defense's needs.] Other federal departments and agencies also have acquisition systems for acquiring goods and services, and there is often tremendous overlap and redundancy between them. A specific example is the Systems Acquisition Office of the National Oceanic and Atmospheric

Administration under the Department of Commerce. They acquire satellites, high altitude aircraft and ships. So does the Department of Defense. Obviously there are different customers and functional uses for the products, and that makes sense -- but the products are very similar. Eventually, with the emphasis on downsizing and reducing the cost of government, someone is going to look at the similar acquisition work that's being done in different places and ask "why do we need several groups doing the same type of work?"

The Department of Defense should begin now to posture itself for that contest, so that when the day arrives, it's no contest. We should become so good (quick, responsive and cost-effective) at acquiring goods and services that exceed the expectations of our customers, that word gets out and other government customers subversively send funds to do the work and beg us to take on their projects. We could become the acquisition system that all federal departments and agencies choose to use. [Refer to Figure 2, with a new Federal Acquisition System, formerly the Defense Acquisition System, depicted as a circle that encompasses the acquisition activities of all federal entities -- the department-unique acquisitions as well as joint acquisitions that serve more than one department.] That's a vision!

Remember that *having* a vision is no guarantee that we'll ever *achieve* it, but if we don't have some idea of what we're aiming for, there's no telling where we'll end up -- and it may be somewhere we didn't intend to go ... like out of business.

Having a vision is essential to successfully reform the acquisition system. As Mr. Barker says, "Vision without action is merely a dream. Action without vision just passes

the time. Vision with action can change the world."[17] Or, in our case, maybe the defense acquisition system.

Next we need to fully **DEFINE THE SYSTEM AND CONDUCT A SITUATIONAL ANALYSIS** (that is, identify external threats and opportunities and internal strengths and weaknesses). Why are a system definition and a situational analysis so important? Common sense dictates that generally we shouldn't try to change something until we first understand what it is, how it works, and the environment it's operating in. As an analogy, think about when we come upon people who've been injured. Aren't we usually advised not to move them, or to immediately change their position? Instead, we first look them over to assess their condition and the situation they're in, so that we don't unintentionally inflict additional harm.

Likewise, the acquisition system must be systematically reviewed and understood as it is now before it can be reformed, or we may inadvertently do more harm than good (recall how tempting it is to sub-optimize or to "tamper").

Defining the System

According to one source:

> "The defense acquisition system is a single uniform system whereby all equipment, facilities, and services are planned, developed, acquired, maintained, and disposed of by the Department of Defense (DoD). The system includes policies and practices that govern acquisition, identifying and prioritizing resource

requirements, directing and controlling the process, contracting, and reporting to Congress."[18]

While the definition mentions outputs from the system (" ... all equipment, facilities, and services ... "), it says nothing about inputs to the system (money and requirements, including schedules) or about one of the prime components of the system, people. This definition is a good start, but it's incomplete.

There is no single 'best' or 'right' way to define the defense acquisition system, but there are several good basic models that might be used as guides. The following framework is adapted from a process model used by consultants with The Paul Hertz Group of Miami, Florida.

It identifies:

- what feeds into the system (**inputs**) and who provides them (**suppliers**);
- what comes out of the system (**outputs**) and who gets them (**customers**);
- what happens to the inputs to transform them into outputs (**processes**);
- what directs changes to the system from within (**feedback loops**); and,
- what **components** are used by the system to accomplish the transformations -- that is,
    - who does the work (**people**),
    - where, and under what conditions, they do it (**environment**),
    - how they do it (**methods**), and
    - with what (**materials** and **machines**).

Additionally, there are other important groups that aren't directly associated with the defense acquisition system, but without whom a description and understanding of the system would be incomplete. They are significant when we consider an extended view of the system and include **groups and individuals who exert influence** over the system, and those we acknowledge as **external suppliers and customers**.

This type of framework hasn't been commonly acknowledged, understood or used with regard to the defense acquisition system. It is relatively simple and straightforward, however, and serves as a strawman from which to begin the definition. [Refer to Figure 3 for a pictorial definition of the acquisition system.]

Inputs feeding into the defense acquisition system include money (or budgets), requirements and schedules. They are provided to the system by outside individuals and organizations, often referred to as sponsors, or suppliers.

Suppliers of budgets, requirements and schedules include the Department of Defense (particularly USD (A&T)), the Military Services (Departments of the Air Force, Army, and Navy -- including the Marine Corps) and the Intelligence Community. They are members of the broader defense community, but are outside the acquisition system. They can be military or civilian, domestic or foreign (as in the case of our allies).

Outputs resulting from the system include, as the definition stated above, weapon systems, facilities, information and services which are used by our customers in the defense community.

Customers who receive the outputs are the equipment users (generally thought of as operators and maintainers), tenants of the facilities, or beneficiaries of the information or services. Just like suppliers, they are members of the defense community, and may be military or civilian, domestic or foreign.

The acquisition macro-**process** -- which takes inputs and transforms them into outputs -- is defined as a " ... sequence of acquisition activities starting from the agency's mission needs, with its capabilities, priorities, and resources (dollars), extending through introduction into use or successful achievement of program objectives."[19]

Another source refers to an even broader scope of activities that covers the entire life-cycle of the product being acquired and includes: determining need, designing and developing, testing, producing, fielding, supporting, improving or replacing, and disposing of weapon systems[20]

The faculty and staff of the Defense Systems Management College, located on Ft. Belvoir, VA, have comprehensively identified and grouped major processes by functional area, and documented them on DSMC Chart #3000, entitled Defense Systems Acquisition Management Process. The chart combines the applicable life-cycle processes, sub-processes and milestones for: Acquisition Management; System Engineering; Software Acquisition Management; Test and Evaluation; Manufacturing and Production; Acquisition Logistics; Business, Cost Estimating, and Financial Management; and, Contract Management. Processes may generally be categorized as technical, business and/or programmatic.

Feedback loops take information on outputs of the system and feed it back into the system as revised inputs, guidance or direction.[21] The feedback loops tell the system to change, and are useful to help understand interrelationships between inputs, processes and components that come together to produce outputs.

Feedback may be formal or informal, and can come as the result of program-related events such as reviews, reports, test data, etc. Test results, for example, can indicate when a particular product does not meet performance specifications or function as intended. The feedback may provide information that the system can use to change itself so that it delivers better outputs.

Revised inputs may also be attributable to events that are external to the system, such as changes in the operational threat/world situation, technological breakthroughs, Congressional hearings and media coverage.

System **components** are used to turn inputs into outputs. They are not inputs fed into the system; rather, they already exist as parts of the system. The five general components are:

- **People** -- these are all of the individuals who operate within the defense acquisition system and include: the Acquisition Workforce (Government employees of the Executive Branch); and Developers (contractors from Industry and/or Executive Branch employees from Government labs).
- **Environment** -- this component has tangible and intangible elements. Tangible parts of the environment include facilities where we work and the rest of the

physical portion of one's environment. Intangible elements of our environment are the way we are organized and the culture of the organization. But also included are the authorities and constraints under which we operate, such as the laws, regulations (particularly the Federal Acquisition Regulation and the defense supplement), directives and policies (like Office of Management and Budget circulars). Truly, the environment for defense acquisition is often volatile, uncertain, complex and ambiguous.

- **Methods** -- these are the practices we use in doing our work and include many things like how we choose the best type of contract to use, evaluate contractor proposals for a new program or conduct source selection. Methods used by the Developer might include how his manufacturing is done. There are sometimes several different methods that might be used to accomplish a particular task. For example, to 'award a contract' (one step of a process), could be done competitively or sole source. There are different methods associated with each. Or, in the case of the Developer's manufacturing facility, the assembly line could be highly automated or more labor-intensive. Again, the process itself would be the same -- to manufacture widgets -- but the methods might vary considerably. Two good examples of methods already modified by Acquisition Reform are the adoption of best commercial practices and the use of EC/EDI.
- **Materials** -- these are the consumables we use in our everyday work like office supplies (paper, pens, paper clips, staples, etc.), or fuel for government vehicles.

- **Machines** -- these are the tools we use to get our jobs done; they may include computers, phones, faxes, video-teleconferencing equipment, etc.

Building upon the Hertz "Extended Process" model, in the 'extended system' view, there are **groups and individuals who exert influence** over, but aren't directly involved in, the defense acquisition system. They include, but aren't limited to:

- competition -- these could be:
  --companies (large and small, domestic and foreign) that are and are not currently part of the defense industrial base, including their
    - industry groups (professional organizations and trade associations)
    - political action committees
    - unions
    - lobbyists

  --other federal agencies or government entities besides DoD which acquire goods, facilities and services for government or public use.
- oversight authority -- higher level government, such as:
  --the Executive Branch, the President and other executive entities, like
    - Department of Defense and Military Services
    - Office of Management and Budget
    - Office of Federal Procurement Policy
    - Department of State
    - National Security Council

  --the Legislative Branch, Congress and its
    - two authorizing committees
    - Senate Armed Services Committee
    - House National Security Committee
    - two appropriations committees

- House Appropriations Committee
- Senate Appropriations Committee
- Senate and House Budget Committees
- various committees having legislative oversight of defense activities
- individual members of Congress
- staffers
- Congressional Budget Office
- General Accounting Office

- public -- a large constituency which includes:
  --individual U.S. taxpayers
  --communities
  --local and state governments
  --the media
  --foreign governments and world opinion
- threats -- one of the most powerful influences, but harder to quantify; includes both the 'known' and 'unknown' dangers facing our nation today.[22]

Last, but certainly not least, we have **external suppliers and customers** of the defense acquisition system. These are basically American citizens, who are the ultimate *suppliers* of money and the requirement for defense, but also include others who are outside the Department of Defense like Congress, the President and other Government Agencies. These same groups outside Defense are also the ultimate *customers*, or recipients of the outcome (what eventually results from delivered defense products) -- a free, safe and secure America.

Conducting a Situational Analysis

Perhaps the most straightforward way to conduct a situational analysis (that is, to identify external threats and opportunities and internal strengths and weaknesses), is to examine the health and status of the system's inputs and components, and the expectations of those outside the system who exert influence and are external customers.

External Threats -- With respect to *inputs*, the defense acquisition system, like the Department of Defense itself, is threatened by a substantial decrease in the budget, and a corresponding decrease in the number of specific requirements for new weapon systems or upgrades to existing systems. (It is important to note, however, that there has been no reduction in the macro-level requirement for defense of the nation.) Because of changing technology (which in itself is not a threat) and sometimes unpredictable challenges to our national security, we are also faced with demands for shortened schedules to develop, produce and deliver our products.

Reduced budgets flow down to affect the *components*, where again there are decreases in some areas, like people. Many acquisition agencies have been downsizing for several years now, and there is a mandated personnel decrease of another 25 percent over the next five years. Although not immediately visible at this time, there will probably also be decreases in materials and machines, as old stockpiles of consumables are depleted (and there are reduced funds available to replenish them) and old machines break and aren't replaced, or become obsolete and are too costly to operate or maintain.

Reduced budgets and requirements also translate to fewer programs, which in turn affects our industrial base. If there is less work to be done, fewer companies are needed to do it. This is considered a threat when the survival of companies, and occasionally entire industries, is placed in jeopardy. If, as a nation, we lose key capabilities offered by those companies or contained in certain industries (like building heavy armament, for which there is little commercial demand), we may lose the competitive advantage we could need to defend our nation and win a future war.

Regarding those outside the system, some *influential groups* may continue to levy unreasonable and impractical expectations on the system. They may continue to insist that we be all things to everyone, and that is a non-trivial problem. The expectations of *customers*, though, probably pose no distinguishable threats. They simply expect us to succeed in the stated mission: to satisfy requirements quickly and cost-effectively.

External Opportunities -- Conversely, the most significant opportunity on our horizon may also be attributable to the expectations of not only our *customers*, but also the *influential groups*. "Change" is in the air, and everywhere it seems, people are looking for better ways to get things done. Therefore, as we reform the acquisition system, if we can just convince outside constituencies and customers to be patient and not to prematurely second-guess what the outcomes might be, we have license to be creative in whatever we decide to do. That has never been possible to the same extent in years past.

Technology, conveyed by a variety of sources (Government laboratories, defense and non-defense industry, both domestic and foreign), also represents a tremendous

opportunity in this day and age. So much is possible today that we could never have imagined in the past. The associated challenge is not only how to use it to upgrade existing capabilities or to meet new product requirements, but also how to leverage it to help minimize the effects of some of the shortfalls we have in other areas, like people, money and time.

Internal Strengths -- Strengths of the system focus around the *components,* the most extraordinary of which is our people, since it is the people who will successfully reform defense acquisition to meet our future needs. The workforce is more knowledgeable and skilled than at any time in the past -- thanks in no small measure to the commitment for additional education and training mandated by the Defense Acquisition Workforce Improvement Act of 1990. Also, because of the formation of Integrated Product Teams for many defense programs, there is more formal emphasis on teamwork among those who acquire products than ever before.

Due to legislative changes over the last couple of years, the environment is one with less statutory and, consequently, fewer regulatory requirements. Accepted methods now stress "what" we want, vice "how" to build it, when we contract with industry for a product. We even encourage commercial item procurement whenever possible. And more of what we do can be done electronically when we solicit bids and award contracts. These all reflect better practices than we've used before.

Technology has made available better, more advanced and capable machines than ever before -- among them, computers, which allow access to automated tools and

electronic mail (with corresponding potential increases in our productivity, efficiency and effectiveness), and video-teleconferencing equipment, which can reduce travel requirements and still permit close coordination and work with those not co-located with us.

Internal Weaknesses -- Some of our weaknesses go hand-in-hand with the strengths. For example, even though more prepared and better equipped than ever for the challenges we face, the people who make up the acquisition workforce do not generally have high morale. Many do not feel that they're making a difference in the world by what they do each day. They still don't believe that much reform has taken place, or at least, that it hasn't filtered down to their levels. They do not feel empowered. There is still too much 'non-value added' bureaucracy in their everyday work experience. And on top of that, with the mandated 25 percent decrease over the next five years, they are wondering where they will end up.

Many believe that the environment is still overly burdened with too many laws, regulations, directives and policy statements -- that not enough has been revised or eliminated. And, as mentioned above, there may be impacts of reduced materials and less or older machines to work with, due to constrained and decreasing budgets.

All of these are important considerations as we analyze the situation of the current acquisition system. An oversimplified, but fairly accurate, general assessment is that the system is expected to "do more with less" and to do it faster. But it's also better

prepared, with more information and technology at its disposal, and, perhaps best of all -- people are predisposed toward change.

Once we've got consensus on what our business is and how it looks right now, we need to **IDENTIFY THE CRITICAL PROCESSES**, those that are the main reason we're in business. For example, a tangible output of the acquisition system is weapon systems; hence, development of those systems (if uniquely designed for the Government) would be a critical process. Contracts, on the other hand, are not outputs which are delivered to a customer -- a user (operator or maintainer), the tenant of a facility or the beneficiary of services rendered. Hence, contracting isn't a critical process.

Current critical processes of the defense acquisition system would include:

- design and development;
- production;
- deployment, or fielding (to include installation, when necessary); and,
- improvement (modernization and/or upgrade), or replacement.

Some processes are important vehicles for how we do business today, but may be unnecessary tomorrow. For instance, consider how vital horses were to our earlier armed forces, the cavalry. If we had stayed within that paradigm about soldiers traveling and fighting on horseback, we might have continued to improve saddles, reins and bits, or focused on making better horseshoes, because those might have been considered critical processes that ensured essential warfighting capabilities. In the modern military,

however, with the kind of wars we fight today and the way we fight them, improving saddles and horseshoes isn't critical. Similarly, in our changing world, with more and more of the threat becoming economic and information-based, we may need less and less emphasis on actual military-specific hardware. The lesson is this: although we currently understand our critical processes fairly well, we need to remember that what is critical today may be totally unnecessary tomorrow. We must avoid getting locked into any specific paradigm for too long -- *just because we've always done it that way doesn't mean we'll always need to do it.*

Put another way, many factors (including technology, laws and regulations, public opinion, etc.) may radically alter not only *how* we do many things in the future, but *if* we do them at all. What we do via an important, even critical, process today may not need to be done tomorrow.

As a more contemporary example, look at what many would consider a current critical process -- "design and development." At one time, in the not-so-distant past, that would always unquestionably have been considered a critical process by anyone who acquired goods for the Government. Today, however, with the preference for commercial items (when they meet the user's requirements), the processes by which those commercial items are designed and developed is generally of little concern to the Government.

We concentrate on critical processes because they are fundamental to our business, and will be of paramount importance as we reform acquisition. They dictate how we do

what we do and are necessary to accomplishing our mission ... at least for today. But it's useful to be aware that, as the system changes, which processes are critical could change, which makes identifying them a challenge that will only intensify as time goes by.

Keeping our critical processes in mind, we need to **IDENTIFY MEASUREMENT CHARACTERISTICS** to reveal how we're doing as we reform the system to fulfill our vision. We'll base many of the measurement characteristics on critical processes because, of everything else in the system (inputs, processes and components), the objectives of those processes are least likely to change. *Steps* may change -- they may be added, improved and streamlined, or eliminated -- but the reason for performing the process will remain more constant. For example, we deploy, or field, products so that the customer may use them to accomplish his mission. But *how* we deploy products might change, depending on the product, in the future.

Basic characteristics that are valuable measurements for each of the critical processes are cost, schedule and performance (or adherence to requirements). Some questions to ask about each process are:

- Are the costs acceptable?
- Is it completed quickly? Within the allowed/accepted timeframe?
- Is the process itself necessary, and does it meet our needs?

These characteristics aren't new; they've been used for many years in defense acquisition when evaluating the status of a weapon system. We need to use them now to help measure how well our system is doing, and to help pinpoint areas ripe for reform.

Although several current critical processes of the defense acquisition system were listed earlier, only one will be discussed to illustrate a tool called 'objective refinement analysis,' used by The Paul Hertz Group, which helps define exactly what to measure and how to measure it. We will look at cost as a measurement characteristic of the "improvement (modernization and/or upgrade), or replacement" process for some existing weapon system. For brevity's sake, we'll refer to it simply as the "improvement" process hereafter.

Objective Refinement Analysis

1. ***state the objective***

   We want the costs of improving a weapon system to be acceptable.

2. ***neutralize the objective -- reword objective to remove expected outcome from statement***

   "Acceptable" is a subjective term. What is acceptable to some may be unacceptable to others. Generally, however, we think that the budgeted costs of an "improvement" effort must be acceptable. Otherwise, the project would not be executed. Therefore, understanding that some variation is likely, we might neutralize the objective by saying, 'we want the actual costs of improving a weapon system to be close to the original budget estimate.'

3. ***refine into measurement characteristic -- be more specific -- describe the neutralized objective in more detail; is it in appropriate form for collecting data?***

   To be more specific, let's say that we'd like for the final costs of improving a weapon system to be within 5% of the original budget estimates. This is a specific characteristic that can be measured.

4. ***select what to measure (sampling scheme) -- all or sample? -- if sample, number of sample, sample size, and frequency of sampling***

   Take data on all ACAT I and II "improvement" (include modernization and/or upgrade, or replacement) programs for each of the Services over the last five years.

5. ***determine measuring device and plan for reliability -- name tool or action by which measurements will be made***

   We will rely on written budget submissions and cost reports from the Services as original sources for the information.

6. ***define measuring technique -- step by step, describe the procedure for measuring: who, what, when, where and how***

   We will request cost data from the Comptroller or each of the Service Acquisition Executives (Army, Air Force and Navy) on the programs that fit the criteria above (ACAT I or II, completed over the last five years). We could ask for two numbers for each program -- original budget cost and final actual cost.

(The two numbers should represent totals only, with no accompanying cost breakdowns. Or we could just ask whether or not the two figures were within five percent of each other -- yes or no.) We will ask for the figures to be relayed informally, by fax or e-mail, within some mutually agreed upon timeframe.

7. ***collect data -- do it***

   No primary or secondary sources were found that had already collected the data described above, and since data collection of that magnitude is beyond the scope of this paper, step number 7 is left for those who are empowered and chartered to systematically reform the acquisition system.

Once data is collected, applicable analytical tools (such as control charts, etc.) might be used to predict process capabilities within the system, as it currently exists, and see how we're performing. We should note that capabilities are calculated numbers that reflect what the process *can* do, as opposed to specifications, or requirements, for what we might *want* it to do.

If we find that the process is not performing within its capability, we need to investigate and find out why. There may be an identifiable problem we can easily resolve that is keeping us from being as successful as we could be with our current process. And perhaps once the process is operating within capabilities, we will be satisfied with the results.

More often we'll find that, while we aren't achieving the results we'd like, we are consistently accomplishing what the process, as currently designed, is capable of doing.

If we decide those results don't meet our expectations, we can gather additional related information to identify the areas we most need to change and use other analytical tools, like Pareto charts, to prioritize them. That enables us to focus our limited energies and resources more wisely.

System metrics will be much tougher. There are no easy answers, only generalities that again revolve around the basics (cost, schedule and performance). It may be useful to study how others measure themselves. For instance, a large construction firm may be tasked to build a manufacturing facility for an electronics company. Often the electronics company will only have 12-18 months to build and market a new widget before technology has moved ahead and made the widget obsolete. Therefore, the design and construction of the new factory must be completed quickly so the widgets can be built and sold for as much of that 12-18 month period as possible. And the factory isn't without challenge! Hence, the military isn't the only community that needs quick turnarounds. Perhaps we can learn some lessons about how to acquire/build things better from other industries/professions like that. And perhaps we can use some of their metrics as well to assess how we're doing along the way.

In a general sense, we know that reform is needed because on the macro-level, we aren't totally satisfied with any of the three basics:

- cost -- things still cost more than we'd like; we can't get all the capabilities we'd like for our budget (some of that will never change -- human nature often causes our wants to exceed our means). But we've got to get good value for our money.

- schedule -- we don't always get things when we want them or when we need them. Sometimes that's because the schedules were unrealistic to start with. Sometimes it's because there are technical problems that were unforeseen. Sometimes it's just due to all the bureaucratic delays in the processes. The bottom line is that the acquisition system must be responsive.
- performance -- most agree that our systems are pretty good, but there are concerns over technology insertion -- how to do it better/faster and make certain we have the best capabilities available at all times.

Perhaps the single biggest metric we should look at is our customer satisfaction rating. Many operators and maintainers (our customers) have little faith in or respect for the acquisition community. We command little credibility in their eyes. And many of them try very hard to avoid working with or through their formal acquisition organizations, preferring to deal directly with laboratories, etc. Some of that is not our fault and is beyond our control. For instance, we must adhere to the laws and regulations that govern defense acquisition -- to do otherwise is not an acceptable alternative. And sometimes those laws restrict us from doing what we want, the way we want to do it -- sometimes for good obvious reasons, sometimes not. But there is much that is within our control, like teaming and sharing information better. People in acquisition were never discouraged or prohibited from working together closely -- it just wasn't the way we chose to do business. Engineers didn't value "loggies." Logistics, unlike exciting design work, was boring -- just a necessary evil, an afterthought -- besides, support was the

loggies' problem, not the design/development engineer's. There were similar disconnects between the financial types ("beancounters"), contracting officers and negotiators, program management staff, etc. It was our philosophy about how we saw the job, viewed each other's contributions and worked together to acquire weapon systems. It was wrong and it was entirely within our power to change it -- which we've done with the introduction of Integrated Product Teams. However, we can't stop there; we have to evaluate the system to discover more areas like that which we can also improve. And if we are open to new ideas and consistently improve our practices, perhaps just maybe we'll begin to win back the confidence of our customers and earn their support. Since they often see us as too rigid/inflexible and wanting to build empires when all they want are their needs met, we might identify many measurement characteristics from their feedback if we surveyed our customers on a large scale in an organized way.

We'll need to beware of natural inclinations to measure what's easy to measure (which may tell us little or nothing), since much of what's most important to measure/understand isn't easily quantified. It was Dr. Deming, an experienced statistician, who said that many of the most important things in life are unknown and unknowable. Therefore, we must accept that we won't be able to define measurement characteristics for everything, and strive to measure the right things whenever possible, not just to measure things right.

As we begin to **TAKE ACTION AND REFORM THE ACQUISITION SYSTEM**, we will want to explore possibilities and try new ideas. We'll need to adopt new mindsets and open ourselves to creative, possibly unorthodox, ways of looking at and solving problems. Some areas of the system will be ripe for improvement, others for total redesign, elimination, or consolidation. And some areas may be best just left alone.

A good practice, already in use by the Acquisition Reform Office, is to try new ideas on a small scale. Dr. Deming advocated a cycle of "plan, do, check/study, act" (PDCA). Acquisition Reform follows the same basic steps on pilot programs.

- Plan the change;
- Do it (implement the change) on a trial basis;
- Check the results and study the outcomes; and, if they're good,
- Act, by institutionalizing the change and putting it into wide-spread use.

Now mindful of paradigms about how we acquire defense products, and Dr. Deming's PDCA cycle, let's return to the example cited earlier -- looking at the costs of improving an existing weapon system. What follows is purely hypothetical, to illustrate the methodology.

Say that, after collecting and analyzing the data, we realize that we are performing within the capabilities of the process, but we feel that the costs are just too high. So we gather additional related information to identify the areas that are cost drivers, and we use a Pareto Chart to prioritize them. We might discover that the reason we most often exceed the original budget estimate of an improvement effort is that the Developer must

add a dedicated layer of management into his organization to answer the constant queries generated by the Government Program Office staff and to respond to the Government's various requirements which differ from commercial sector practices.

We want to make a major change that will help reduce the costs drastically. We want to reform the system ... so we brainstorm the possibilities, and we come up with an idea that's pretty radical, but just might work.

Consider an improvement program contracted out to industry with no traditional program office to oversee it -- no group of government personnel for daily interaction with the contractor. The Government simply states requirements, awards a sole source contract (since it is an improvement effort on an existing system), fully funds the work, gets periodic reports on status or has interim meetings to discuss any trade-off decisions that may arise during the course of the effort, and gets a product delivered at the end. The PDCA approach would be to: Plan and do a few of these type efforts so that we can check the results and study the outcomes, before we act by putting the idea into wide-spread use.

Since we're only going to approve a couple of programs of this kind initially (and those are generally called "pilot" programs), we'll play on the term 'autopilot,' used when a plane flies itself without a human pilot's intervention. We'll call the first few improvement programs that have no counterpart government office "AutoPilot" programs, since we're assuming they'll run fine without daily government oversight and direction. Wouldn't work? Maybe not for everything, but it might work for some

projects. So who would get the periodic reports on status or have interim meetings to discuss trade-offs or alternatives when necessary?

Brainstorm further to imagine a consolidated acquisition organization for the defense community, one which acquires goods and services for all of the military Services. It might be configured with several main functional divisions, such as:

- Land-Based Systems
- Sea (or Afloat) Systems
- Underwater Systems
- Air Systems
- Space Systems
- Common/Support Subsystems
- Warfighter Support Systems

Each of these divisions might be further broken down into more specialized areas. For instance, Land-Based Systems might consist of Fixed Systems (like radar sites, or collection/processing equipment) and Mobile Systems (which would include vans of equipment, or other vehicles like jeeps and tanks). It might even make sense to further subdivide into additional levels. There would be a cadre of personnel in each functional area who'd have general and specialized experience in those types of systems. And without focusing on just one particular product, they would be available to serve as the government team to coordinate with industry on any issues that might arise during the course of an "AutoPilot" program like that described above.

Defense acquisition contracts with almost non-existent Government oversight? A consolidated acquisition organization for the defense community? Impossible? Maybe -- maybe not. Are they good ideas? Again, maybe -- maybe not. We won't know unless we evaluate them, and how they'd be implemented, with respect to impacts on the rest of the system in the context of today's environment.

The point is that the ideas represent a different way of thinking which shouldn't be dismissed without discussion. They are the kinds of ideas we must be willing to explore if we are going to reform defense acquisition. Radical changes -- tried experimentally on a small scale -- may be necessary to help create a system that meets our needs now and in the future.

Mr. Barker, the futurist, suggested that we routinely ask ourselves, 'What today is impossible to do in our business, but if it could be done, would fundamentally change what we do?'[23] With all the current emphasis on oversight, and everyone always checking everyone else's work, we could not possibly tell a Developer what we want, give him money and just let him go off and do the job ... or could we? If we could, it would fundamentally change some of what we do in the acquisition system, wouldn't it?

Perhaps we'll look back a few years from now -- as we leave our offices on time at the end of the day, desks clean and ready for another productive day tomorrow -- wondering why such an obvious good idea wasn't adopted sooner, and smiling as we realize that what was impossible yesterday has become an accepted, effective and efficient way of doing business today.

The work won't be complete, though, until we also **CREATE A CONTROL SYSTEM TO MONITOR AND TRACK IMPROVEMENT**. This is different from Deming's direction to "Check/Study" the results of trial projects, part of his cycle for improvement efforts. It refers to a more permanent mechanism to be implemented once changes are tested, adopted and put into wide-spread use.

We must continue taking data and monitoring results on a larger scale to see how we're doing, even after we've decided that a new concept is good and that we want to use it. That's the only way we can make sure that whatever we did was indeed a change for the better for the whole system over the long term. Also, getting feedback, as discussed earlier, collects additional information and suggestions for continued improvement, and may even help determine when radical rethinking is necessary again at some point in the future.

Feedback can come from many sources. Looking again at the system helps to identify potential sources, which may include:

- the people working in the system -- they are intimately familiar with the work on a daily basis, and are in the best positions to detect specific inefficiencies or waste;
- the processes -- if we can determine what variables to look at and take the right data, we can apply analytical tools which then allow the processes themselves to, in effect, tell how they're doing;

- our customers -- those who directly receive our products can judge how well we're meeting their needs with respect to quality and timely delivery, and the external customers who benefit in the larger sense will determine overall whether or not we have worth as a system, whether or not we contribute to their general welfare; and,
- groups and individuals who exert influence over the system -- this very diverse group can provide a lot of useful information. Based on the competition (companies and other government acquisition entities), we can gauge our efficiency, and maybe exchange "best practice" ideas and improvement concepts. Higher level government can instruct support of broader national goals and objectives, so that the defense acquisition system doesn't maximize *its* performance to the detriment of the nation's well-being. The public can help maintain the integrity of the system by observing whether or not we demonstrate honest, responsible and ethical behavior. And, last but not least, global threats may indicate in less quantifiable or obvious ways how well *they think* the system is performing when they are deterred from aggression and our delivered products never have to be used.

Current control systems are lacking and disjointed; we are not getting feedback from many sources and integrating it to give us a complete picture of how well the defense acquisition system is working. One example of a control mechanism is DoD's Planning, Programming and Budgeting System (PPBS) used to decide which weapon systems will be acquired, how many and at what cost.[24] Although it's more useful than what we used to have for resource allocation, the PPBS doesn't give a complete picture of how well the

defense acquisition system actually acquires the product, or of how well the final product meets the customer's expectations.

A common problem with current control systems is that, like with metrics, we get feedback on what's easy to get -- not necessarily on what's most important. For instance, we sometimes survey our senior operational customers because they're fewer in number, they control more of the budget and people resources, etc. But is their feedback, or are their perceptions, any more valid or more useful than the individual field users? Probably not -- it's just easier to get.

For that matter, as stewards of taxpayer funds, it's important that we try to get some direct feedback from the public. We get lots of feedback and attention when we've really screwed up (recall the examples of the 1980s: exorbitantly priced hammers and toilet seats), but we seldom let the public know what we're doing otherwise, or ask what they think of us -- how well are we doing our job? Their perceptions are important, though, and we need that feedback to help paint the most accurate and complete picture we can of how we're doing. Similarly, we should survey our industry partners and counterparts and many other entities for a 360° look at ourselves. It's a massive undertaking, but we need a well-thought-out control system that incorporates as much feedback as possible from as many sources as possible to give us that evaluation.

A control system may be structured as one or more databases, or some other yet to be determined form. The process for monitoring and measuring feedback may use many tools for gathering the information -- budgets and cost reports, product testing, surveys,

interviews, telephone "hot lines," program reviews, suggestion boxes, "town meetings," control charts, panel discussions, personnel exchange programs, etc. The list appears endless, since there simply is no one best or right way to collect data or get feedback. How it's done will depend on who's being asked and what information is asked for. It should be done systematically, with a plan for how the information will be used to reform the system, or to make improvements. Most important, though, is just to do it -- solicit and use feedback from various sources to build a better defense acquisition system.

WHERE DO WE GO FROM HERE?

The Department of Defense, led by USD (A&T), needs to charter an executive-level team, composed of individuals from within and outside of the defense acquisition system, to serve as a steering group for the future of Acquisition Reform. Roughly three-quarters of the team should be from within -- civilian DoD, military and industry -- with the membership evenly split among those groups. The remaining quarter should consist strictly of military users, from outside the acquisition community. All of the Services should be evenly represented, as should all functional areas (program management, engineering, logistics, testing, finance and contracting, etc.).

The purpose of the team would be to systematically reform the defense acquisition system. It would be charged with generating and analyzing new ideas, and should be assembled, initially at least, for two years, with a possible extension of one or two years. The team should be encumbered with the minimum constraints possible. By contrast, the

DoD Acquisition Reform Office is currently focusing on institutionalizing some of the more recent acquisition reform initiatives. [Any overlap or duplication of effort between the two groups should be avoided.]

The leader should be a very senior executive who can provide guidance, inspiration, and visibility, and who can acquire whatever resources the team will need to do the job.

Subordinate to the executive team would be smaller, focused, more specialized groups of working-level subject matter experts who'd be tasked, as needed, to work specific questions, issues, or concerns raised within the executive team. The smaller groups would help perform research, collect and analyze data, brainstorm possibilities and document findings and recommendations.

Working spaces for everyone should be assigned at the National Defense University (NDU) in Washington, DC -- a pleasant environment with close access to the faculty, staff and students of the Industrial College of the Armed Forces and the National War College, and the services of the NDU Library. Team members would also be close enough to call upon the faculty, staff and students of the Defense Systems Management College at Fort Belvoir, VA.

Team-building time should be allocated up-front to maximize chances for a really high-performing team. The team members should give status briefs (perhaps quarterly) to USD (A&T), the Service Acquisition Executives, Congressional representatives and even Vice President Gore, if possible, to support the "Government Re-Invention" effort.

[Any interim findings and recommendations could be implemented immediately if desired, under the auspices of the Acquisition Reform Office.]

The team should be encouraged to:

- review the current defense acquisition system;
- learn about systems thinking, the recipe described in this paper and analytical tools used for reform;
- study/compare other acquisition systems -- public (U.S. and foreign) and private; and,
- integrate and apply what they've learned to reform the existing defense acquisition system.

Team members should have flexibility to deviate or stray from the model, if and when it seems appropriate and worthwhile to them.

Finally, when they feel they've reformed the system substantially, or at the end of two years (whichever comes first), they should present their consolidated findings and recommendations for the new defense acquisition system to USD (A&T) for approval and implementation.

The discussion herein is by no means complete or comprehensive as far as defining the business or the system, conducting a situational analysis, or identifying critical processes or measurement characteristics. Likewise, it falls far short of recommending a complete strategy for reforming the defense acquisition system. Any one of those would

have been an overly ambitious goal for one research paper; in total, they'd be impossible goals for even a large book. Quite simply, no individual is knowledgeable enough to do all of that alone, or has the time in a single career.

The work must be done, though. While the initial efforts on laws, practices and processes weren't a bad place to start, we must not continue acquisition reform in a piecemeal fashion. We must systematically reform the system to better meet our defense acquisition needs today and in the future.

[1] LTC Stephen V. Reeves. "Executive Research Project, The Ghosts of Acquisition Reform: Past, Present and Future" (The Industrial College of the Armed Forces, National Defense University, Ft. McNair, Washington, D.C., 1996, photocopy), p. 27.
[2] Joseph H. Schmoll. Introduction to Defense Acquisition Management (Ft. Belvoir, VA: Defense Systems Management College Press, 1996) p. 12.
[3] *Ibid.*, p. 13.
[4] Senate Committee on Armed Services, "Report of the Advisory Panel on Streamlining and Codifying the Acquisition Laws," 103rd Congress, First Session, 10 March 1993; p. 2 (comments by Senator Nunn, Chairman).
[5] *Ibid.*
[6] Department of Defense Acquisition Law Advisory Panel, Streamlining Defense Acquisition Laws (Executive Summary) (Ft. Belvoir, VA: Defense Systems Management College Press, 1993) p. 7.
[7] Barker, Joel A. "Discovering the Future Series: The Business of Paradigms." (Burnsville, MN: Charthouse International Learning Corporation, 1989) videotape.
[8] *Ibid.*
[9] "Defense Acquisition," DoD Directive 5000.1 (15 March 1996).
[10] U.S. Constitution, Article I, Sections 8 and 9.
[11] *Ibid.*, Article I, Section 8.
[12] Barker, Joel A. "Discovering the Future Series: The Power of Vision." (Burnsville, MN: Charthouse International Learning Corporation, 1990) videotape.
[13] Donna Richbourg, DUSD (AR)'s Speech to ICAF Students on Acquisition Reform, 17 April 1997.
[14] Staffer in Dr. Kaminski's Office (USD (A&T)), telephone conversation revealed 'USD (A&T) has a charter, but no vision statement for acquisition,' 15 April 1997.
[15] Barker, "Discovering the Future Series: The Power of Vision."
[16] *Ibid.*
[17] *Ibid.*
[18] Schmoll, *op. cit.*, p. 1.
[19] Office of Management and Budget, "Major Systems Acquisitions," Circular A-109 (April 1976).
[20] Schmoll, *op. cit.*, p. 2.
[21] Barbara Gail Hanson. General Systems Theory Beginning with Wholes (Toronto, Ontario, Canada: Taylor & Francis, 1995) p. 58.
[22] Schmoll, *op. cit.*, pp. 3-6.
[23] Barker, "Discovering the Future Series: The Business of Paradigms."
[24] Schmoll, *op. cit.*, pp. 51-53.

Bibliography/Sources Cited

BOOKS/REPORTS:

Hanson, Barbara Gail. General Systems Theory Beginning with Wholes. Toronto, Ontario, Canada: Taylor & Francis, 1995.

Reeves, LTC Stephen V. "Executive Research Project, The Ghosts of Acquisition Reform: Past, Present and Future." The Industrial College of the Armed Forces, National Defense University, Ft. McNair, Washington, D.C., 1996. Photocopy.

Schmoll, Joseph H. Introduction to Defense Acquisition Management. Ft. Belvoir, VA: Defense Systems Management College Press, 1996.

Senge, Peter M. The Fifth Discipline: The Art and Practice of the Learning Organization. New York: Doubleday, 1990.

GOVERNMENT PUBLICATIONS:

"Defense Systems Management College (DSMC) Chart #3000: Defense Systems Acquisition Management Process." DSMC, Ft. Belvoir: 1996.

U.S. Department of Defense Acquisition Law Advisory Panel. Streamlining Defense Acquisition Laws (Executive Summary). Ft. Belvoir, VA: Defense Systems Management College Press, 1993.

U.S. Department of Defense. "Defense Acquisition." DoD Directive 5000.1, 15 March 1996.

Office of Management and Budget. "Major Systems Acquisitions." Circular A-109, April 1976.

The Constitution of the United States.

CONGRESSIONAL TESTIMONY:

U.S. Senate Committee on Armed Services. "Report of the Advisory Panel on Streamlining and Codifying the Acquisition Laws." 103rd Congress, First Session, 10 March 1993.

VIDEOS:

Barker, Joel A. "Discovering the Future Series: The Business of Paradigms." Charthouse International Learning Corporation, Burnsville, MN, 1989.

Barker, Joel A. "Discovering the Future Series: Paradigm Pioneers." Charthouse International Learning Corporation, Burnsville, MN, 1993.

Barker, Joel A. "Discovering the Future Series: The Power of Vision." Charthouse International Learning Corporation, Burnsville, MN, 1990.

PERSONAL COMMUNICATIONS:

Richbourg, Donna. DUSD (AR)'s Speech to ICAF Students on Acquisition Reform, 17 April 1997.

Staffer in Dr. Kaminski's Office (USD (A&T)), telephone conversation, 15 April 1997.